Case Report:
Ovarian Immature Teratoma Associated with Pregnancy

Authors:
Smita Chandra, Professor, Department of Pathology,
Sushil Kumar Shukla, Senior Resident, Department of Pathology,
Upasana Barua, Assistant Professor, Department of Obstetrics and Gynecology,
Meena Gupta, Professor, Department of Radiotherapy, Professor, Department of Pathology,
Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Jolly Grant, Doiwala, Dehradun-248140, Uttarakhand, India.

Address for Correspondence
Dr. Smita Chandra,
Professor, Department of Pathology,
Himalayan Institute of Medical Sciences,
Swami Rama Himalayan University,
Jolly Grant, Doiwala,
Dehradun-248140, Uttarakhand, India.
E-mail: smita_harish@yahoo.com.

Citation

Submitted: Jan 12, 2019; Accepted: Apr 11, 2019; Published: Apr 30, 2019

Abstract: Ovarian immature teratoma is an uncommon tumor and its association with pregnancy is rarer still. At times it may be asymptomatic and lie undetected till full term pregnancy. The present rare case is being reported because of its unusual presentation where the female presented with immature ovarian teratoma with full term pregnancy and omental metastasis. Histopathological diagnosis with vigilant examination of the sections is essential for the grading of the tumor and determining the prognosis of this aggressive tumor. The management of this malignancy is crucial depending on gestational age, patient decision and associated fetal risks. The case also highlights that it is essential to assess all the pregnancies during antenatal period with ultrasonography and fetal delivery of any unsuspected genital organ tumor.

Key Words: Immature teratoma, Ovary, Pregnancy, Prognosis

Introduction:
According to GLOBOCAN 2018, the new cases of ovarian carcinoma constitutes 1.6% of all cancers with age standardized rate of 6.6/100,000 females [1]. The incidence of ovarian tumors associated with pregnancy is considered to be one in 1000 pregnancies with 3-6% of tumors being malignant [2]. Immature teratoma of ovary is a malignant tumor which is derived from all the three germ layers (ecto, endo and mesoderm) with histological grade depending on amount of primitive neuroepithelial element present. It constitutes less than 1% of all ovarian teratoma and its association with pregnancy is rarer still with reported incidence of 0.07% [3,4]. Although it is easily detected in earlier stage of pregnancy with the routine ultrasonography (USG) but rarely it may lie undetected till the full term pregnancy. The present rare case is therefore being reported because of its unusual presentation where the female presented with immature ovarian teratoma with full term pregnancy and omental metastasis. The case also highlights the diagnostic dilemma with importance of histomorphological diagnosis in management of this case.

Case Report
A 24 years old primigravida female presented to the obstetrical emergency with abdominal and pelvic pain with increasing severity for last two week. On examination there was abdominal rebound tenderness with full term pregnancy and palpable mass in right pelvic region. The patient had not undergone any antenatal health check up previously and was taken care by village untrained health personnel. An immediate ultrasonography revealed single live intrauterine fetus with cephalic presentation and calculated gestational age of 36 weeks 3 days with polyhydroamnios. The right ovary showed a large cystic mass of size 18x13.6 x17.3 cm abutting the lower pole of right kidney and inferior interface of liver. Color Doppler did not show any significant increased vascularity. Her laboratory investigations were hemoglobin 9.4g/dl, platelet count 191.4x10^9/l, total leukocyte count 9.8x10^9/l, serum CA 125 level was 82.3 U/ml (normal range 0-35U/ml), serum carcino embryonic antigen (CEA) was 0.77 ng/dl (normal range <2.5 ng/dl)and alpha feto protein (AFP) was 31.2 ng/ml (normal range 0-9 ng/ml). An elective caesarian section with right salpingo-oophorectomy and omentectomy was done and live baby with birth weight of 2715 g was delivered. The right ovarian solid cystic mass got ruptured while delivering outside the abdomen and greasy gelatinous fluid came out. Grossly the right ovarian mass measured 16.5x13.5x10 cm and capsule was ruptured. Cut surface showed variegated solid to cystic areas with cartilage and hair follicles (Figure 1 A). Omentum showed few thickened areas. On microscopic examination, an immature teratoma was identified with capsular breach showing tissue derived from all three germinal layers (adipose tissue, respiratory epithelium, cartilage, glial tissue, gastro-intestinal columnar...
epithelium, hair follicles, skin and bone) (Figure 1B). At places, primitive neuro-ectodermal tissue with neuroepithelial rosettes were also seen involving 1-4 areas/low power field (Grade 2). Mitotic figures were sparse (<1/10 high power field) (Figure 1C, D). Section from omentum showed tumor deposits (Figure 2A, B). The surgical stage of the case was designated as FIGO stage IIIIB. The patient refused to take any treatment at that time and returned back after seven months for further management.

Discussion
Ovarian immature teratoma is uncommon aggressive tumor and its association with pregnancy is extremely rare. Epithelial and germ cell tumor are reported to be more prevalent than other malignancies in pregnancy with dysgerminoma being the most common germ cell tumor [5]. The median gestational week of diagnosis for immature teratoma is 1.8 ± 10.3 weeks of pregnancy [3]. However, our case was diagnosed late at 36 weeks of pregnancy as she had not undergone any USG or antenatal health check-ups and was mostly asymptomatic during her entire pregnancy.

Adnexal mass, pelvic and abdominal pain, hyperemesis are the common presenting complaints of this malignancy with pregnancy but rarely it may also be asymptomatic and detected during caesarian section [3, 6]. Routine USG is the mainstay for diagnosis and may also be associated with increased serum alpha fetoprotein level [7].

Grossly, immature teratomas are large tumor with solid and cystic areas and have been reported to rupture during operation in 17.4% cases which is a poor prognostic factor [3]. Intra-operative rupture of the tumor was also observed in the present case which may be possibly due to its large size. Histologically, it is essential to grade immature teratoma depending on the number of areas of primitive neuroectodermal and neuroepithelial rosettes present per low power field (LPF). It was observed in the present case that grade 2, 1-4 areas/LPF were involved by primitive neuroectodermal tissue proving it to be grade 2 tumor (Figure 3). Grade 2 or 3 immature teratoma are considered to have poor prognosis with greater chances of recurrence within 2 years of diagnosis [3, 8]. Another important poor prognostic factor associated with our case was omental metastasis with FIGO stage IIIB.

The management of immature teratoma during pregnancy requires special attention because of coexisting fetus. The patient’s decision to continue pregnancy and maintain her reproduction is an important factor to be considered [9]. In addition, the grade and stage of the tumor also plays an important role in the management. Grade 2 or grade 3 immature teratoma with an extra-ovarian spread requires resection of tumor as much as it is feasible and safe with possibly adjunctive chemotherapy including bleomycin, etoposide and cisplatin protocol [3]. The risk of fetal malformation during first trimester by chemotherapy is reported to be more while it minimizes in later stages of pregnancy [9]. However, in our case the patient refused to take any chemotherapy immediately after delivery of live fetus despite providing her information of all the consequences. She presented with recurrence after seven months and was subjected to chemotherapy to which she responded and is now on follow up. The five year survival rate of unilateral immature teratoma is reported to be 93.6% while for bilateral is 80.7%.[10]

Conclusion
Ovarian immature teratoma may very rarely be associated with pregnancy and at times may be asymptomatic and undetected till full term pregnancy. Histopathological diagnosis with vigilant examination of the sections is essential for the grading of the tumor and determining the prognosis of this aggressive tumor. The management of this malignancy is crucial depending on gestational age, patient decision and associated fetal risks. The case also highlights that it is essential to assess all the pregnancies during antenatal period with ultrasonography and fetal delivery of any unsuspected genital organ tumor.

References